Analytical Data Package Prepared For

Pacific Northwest National Lab

Radiochemical Analysis By

STL Richland STLRL

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Data Package Contains _____ Pages

Report Nbr: 34602

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05071A	W07-011	B1L5X3	J7B210142-1	JPRA81AD	9JPRA810	7052433
		B1L5X3	J7B210142-1	JPRA82AA	9JPRA820	7059236
		B1L5X3	J7B210142-1	JPRA82AC	9JPRA820	7059234

Comments:

SEVERN TRENT STL

STL Richland
2800 George Washington Way
Richland, WA 99354

Tel: 509 375 3131 Fax: 509 375 5590
www.stl-inc.com

Certificate of Analysis

Pacific Northwest National Laboratories
Sigma V Building
Richland, WA 99352

March 2, 2007

Attention: Dot Stewart

SAF Number	:	W07-011
Date SDG Closed	:	February 20, 2007
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W05071A
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On February 15, 2007 a request for additional analyses of one water sample was received at STL Richland (STLR). Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Pacific Northwest National Laboratories (PGW) specific ID:

PGW ID#	STLR ID#	DATE OF RECEIPT	MATRIX
B1L5X3	JKPGR	11/30/06	WATER

II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Gas Proportional Counting
Gross Alpha by method RICH-RC-5014
Gross Beta by method RICH-RC-5014
Liquid Scintillation Counting
Technetium-99 by TEVA method RICH-RC-5065

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Gas Proportional Counting

Gross Alpha by method RICH-RC-5014:
The original analysis had a low yield for the LCS. It was rerun with good results. Except as noted, the LCS, batch blank, samples and sample duplicate (B1L5X3) results are within contractual requirements.

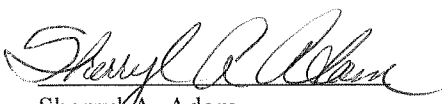
Gross Beta by method RICH-RC-5014:
The original analysis had a low yield for the LCS. It was rerun with good results. The achieved MDAs for all of the samples are greater than the CRDL due to sample matrix effects; reduced volumes were analyzed based on an elevated screen results. The detected activities exceed the achieved MDAs. Except as noted, the LCS, batch blank, samples and sample duplicate (B1L5X3) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by TEVA method RICH-RC-5065:
The LCS, batch blank, samples, sample duplicate (B1L5X3), and sample matrix spike (B1L5X3) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Sherryl A. Adam
Project Manager

Adam, Sherryl

From: Hampt, Heidi [heidi.hampt@pnl.gov]
Sent: Wednesday, February 14, 2007 11:03 AM
To: Adam, Sherryl
Cc: Stewart, Dorothy L
Subject: Request for Recheck, Recount, or Reanalysis Order

Attachments: 070214STLRLR3723.rtf

070214STLRLR3723
.rtf (4 KB)

<<070214STLRLR3723.rtf>>

See Attached

02/14/2007
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

Severn Trent Incorporated,
2800 George Washington
Richland, WA 99354

Battelle PNNL Order Number: 070214STLRL-R3723

Sample Delivery Group: W05071

Special Instructions None

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
9JKPGR10	B1L5X3	Reanalysis	15/15	TC99_ETVDSK_LSC
9JKPGR10	B1L5X3	Reanalysis	15/15	9310_ALPHABETA_G

Deliver Report Results to: Dorothy L. Stewart, K6-96
c/o Secretary
3110 Port of Benton Blvd.
Richland, WA 99352

The report results must reference the Battelle PNNL-order number, SDG number, and the Battelle PNNL sample identification number shown above.

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) *u_c - Combined Uncertainty.*	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

STL Richland Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD Version: 05 Rpt Nbr: 34602 File Name: h:\Reportdb\edd\FeadIV\Rad\W05071A.Edd, h:\Reportdb\edd\FeadIV\Rad\34602.E

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:	Collection Date:
9JPRA810	B1L5X3		MW6-SBB-A1	W07-011	W05071A					11/30/2006 12:55

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7052433	TC-99	14133-76-7	1.27E+03	pCi/L	1.9E+01	8.1E+01		9.54E+00	100.0	TC99_ETVDSK_LS	1.251E-01	L	02/23/2007 02:49	I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:	Collection Date:
9JPRA820	B1L5X3		MW6-SBB-A1	W07-011	W05071A					11/30/2006 12:55

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7059236	ALPHA	12587-46-1	2.41E+00	pCi/L	1.6E+00	1.7E+00		2.35E+00	100.0	9310_ALPHABETA	1.23E-01	L	03/01/2007 14:53	I
7059234	BETA	12587-47-2	2.90E+02	pCi/L	1.0E+01	3.9E+01		4.61E+00	100.0	9310_ALPHABETA	1.247E-01	L	03/01/2007 13:13	I

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05071A.Edd, h:\Reportdb\edd\FeadIV\Rad\34602.E

Lab Sample Id:	JP7231AB	**Sdg/Rept Nbr:**	W05071A	34602	**Collection Date:** 11/30/2006 12:55
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BLK		**Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AC	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7059234	BETA	1.36E+00	pCi/L	1.2E+00	U	2.44E+00	100.0		9310_ALPHAB	2.039E-01	03/01/2007				D
BLK	12587-47-2			1.2E+00						L	13:13				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Lab Sample Id: JP7241AB **Sdg/Rept Nbr:** W05071A 34602 **Collection Date:** 11/30/2006 12:55

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BLK **Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AE	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7059236	ALPHA	-1.27E-01	pCi/L	1.3E-01	U	5.26E-01	100.0		9310_ALPHAB	1.991E-01	03/01/2007				D
BLK	12587-46-1			1.3E-01						L	14:53				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Lab Sample Id: JPTLC1AB **Sdg/Rept Nbr:** W05071A 34602 **Collection Date:** 11/30/2006 12:55

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BLK **Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AK	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7052433	TC-99	6.54E+00	pCi/L	5.3E+00	U	8.97E+00	100.0		TC99_ETVDSK	1.264E-01	02/23/2007				D
BLK	14133-76-7			3.7E+00						L	05:57				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Lab Sample Id:	JP7231CS	**Sdg/Rept Nbr:**	W05071A	34602	**Collection Date:** 11/30/2006 12:55
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	**BS**		**Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AD	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7059234	BETA	2.14E+01	pCi/L	3.6E+00		2.41E+00	100.0	2.29E+01	9310_ALPHAB	1.999E-01	03/01/2007			70	D
BS	12587-47-2			2.3E+00				93.4		L	13:13			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

STL Richland QC Control Sample Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05071A.Edd, h:\Reportdb\edd\FeadIV\Rad\34602.E

Lab Sample Id:	JP7241CS	**Sdg/Rept Nbr:**	W05071A	34602	**Collection Date:** 11/30/2006 12:55
Client Id:	NA	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	BS		**Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AF	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7059236	ALPHA	1.85E+01	pCi/L	4.6E+00		5.16E-01	100.0	2.29E+01	9310_ALPHAB	2.003E-01	03/01/2007			70	D
BS	12587-46-1			1.9E+00				80.7		L	14:53			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Lab Sample Id: JPTLC1CS **Sdg/Rept Nbr:** W05071A 34602 **Collection Date:** 11/30/2006 12:55

Client Id: NA **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** BS **Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AL	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7052433	TC-99	4.76E+02	pCi/L	3.3E+01		9.02E+00	100.0	5.35E+02	TC99_ETVDSK	1.269E-01	02/23/2007			70	D
BS	14133-76-7			1.2E+01				89.1		L	07:00			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05071A.Edd, h:\Reportdb\edd\FeadIV\Rad\34602.E

Lab Sample Id:	JPRA81FR	**Sdg/Rept Nbr:**	W05071A	34602	**Collection Date:** 11/30/2006 12:55
Client Id:	B1L5X3	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	DUP		**Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
W07-011	MW6-SBB-A19981								AH	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7052433	TC-99	1.29E+03	pCi/L	8.3E+01		9.43E+00	100.0		TC99_ETVDSK	1.273E-01	02/23/2007	1.7	0.4		D
DUP	14133-76-7	1.27E+03		1.9E+01						L	04:54	20.0	3		

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Lab Sample Id: JPRA81JR **Sdg/Rept Nbr:** W05071A 34602 **Collection Date:** 11/30/2006 12:55

Client Id: B1L5X3 **Matrix:** WATER WATER **Sample On Date:**

Moisture/Solids%*: **QC Type:** DUP **Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
W07-011	MW6-SBB-A19981								AI	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7059234	BETA	3.37E+02	pCi/L	4.5E+01		4.45E+00	100.0		9310_ALPHAB	1.26E-01	03/01/2007				D
DUP	12587-47-2			1.1E+01						L	13:13				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

STL Richland QC Duplicate Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05071A.Edd, h:\Reportdb\edd\FeadIV\Rad\34602.E

Lab Sample Id:	JPRA81KR	**Sdg/Rept Nbr:**	W05071A	34602	**Collection Date:** 11/30/2006 12:55
Client Id:	B1L5X3	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	DUP		**Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
W07-011	MW6-SBB-A19981								AJ	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7059236	ALPHA	2.06E+00	pCi/L	1.5E+00	U	2.16E+00	100.0		9310_ALPHAB	1.246E-01	03/01/2007				D
DUP	12587-46-1			1.5E+00						L	12:59				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

STL Richland Qc Matrix Spike Report

Lab Code: STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05071A.Edd, h:\Reportdb\edd\FeadIV\Rad\34602.E

Lab Sample Id:	JPRA81EW	**Sdg/Rept Nbr:**	W05071A	34602	**Collection Date:** 11/30/2006 12:55
Client Id:	B1L5X3	**Matrix:**	WATER	WATER	**Sample On Date:**
Moisture/Solids%*:		**QC Type:**	MS		**Received Date:** 02/15/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
W07-011	MW6-SBB-A19981								AG	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7052433	TC-99	2.90E+03	pCi/L	2.7E+02		9.08E+00	100.0	3.72E+03	TC99_ETVDSK	1.232E-01	02/23/2007			60	D
MS	14133-76-7			3.3E+01				78.0		L	03:52			140	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

3/2/2007 1:15:20 PM

Lot No., Due Date: J7B210142; 03/01/2007

Client, Site: 384868; PGW 615HANFORD HANFORD

QC Batch No., Method Test: 7059236; RALPHA-A Alpha by GPC-Am

SDG, Matrix: W05071A; WATER

	Yes	No	N/A
8.0 Correction Calculation Protocol Used. OK	✓		
8.01 The Appropriate Methods Were Used To Analyze the Samples OK	✓		
8.02 Final Results Are in the Appropriate Activity Units OK	✓		
8.03 Batch Contains the Required QC Appropriate for the Method OK	✓		
8.04 The Correct Tracer and QC Vials Where Used in the Samples OK	✓		
8.05 Sample was Appropriately Traced Before or After Fractionating the Sample OK	✓		
8.06 At Least the Minimum Sample Volume Was Used Analysis Volume => JPRA82AA 123.00<200.00 Q:VB		✓	
8.07 The Correct Count Geometry was Used. OK	✓		
8.08 The Sample was Counted for the Minimum Count Time or CRDL was Achieved. OK	✓		
8.09 Method Blank is within Control Limits. OK	✓		
8.1 Comments:			
8.11 Matrix Blank is within Control Limits. No Matrix Blanks (MBlks) found in Batch!			✓
8.12 Method Blank(s) < QAS Limit Value (No B Flag Necessary). OK	✓		
8.13 QAS Specified Duplicate Equation Value within Control Limits. OK (RPD)	✓		
8.14 LCS within Control Limits. OK	✓		
8.15 MLCS within Control Limits. No Matrix Spikes (MLCS) found in Batch!			✓
8.16 MS within Control Limits. No Matrix Spike Samples (MS) found in Batch!			✓
8.17 Tracer within Control Limits. OK	✓		
8.18 Samples are above Minimum Tracer Yield (No Failed Samples) OK	✓		
8.19 Sample Specific MDC <= CRDL. OK	✓		
8.2 Comments:			
8.21 Result < Lc, Activity Not Detected, U Flag. No Limit Specified!			✓
8.22 Result < Mdc, Activity Not Detected, U Flag. No Positive Results OK	✓		
8.23 Result <= Action Level, when Defined. OK; No Action Level Found => ALPHA OK; No Callin Level Found => ALPHA	✓		
8.24 Result + 3s >=0, Not Too Negative. OK	✓		
8.25 Counting Spectrum are within FWHM Limits. No FWHM found in Batch Data!			✓

8.26 Instruments have Current Calibrations.	Yes	No	N/A
8.27 Correct Count Library Used. No Count Library found in Batch Data!	Yes	No	N/A ✓
8.28 Instrument Background within Limits at Time of Counting. (Not Applicable to this version. To be developed in later versions)	Yes	No	N/A
8.29 Instrument Check Source within Limits at the Time of Counting. (Not Applicable to this version. To be developed in later versions)	Yes	No	N/A
8.3 Comments: NCM # 10-09503			
8.31 Results Blank Subtracted as Appropriate. OK	Yes ✓	No	N/A

First Level Review Lisa Antonsson **Date** 3/2/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 7059236
W050718

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: See NCM

Second Level Review: Sheryl A Adam Date 7-2-07

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-09503**
NCM Initiated By: Lisa Antonson
Date Opened: 03/02/2007
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: Alpha by GPC-Am
Lot #'s (Sample #'s): J7B210142 (1), J7B280000 (236),
QC Batches: 7059236

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	03/02/2007	This Alpha batch is a rerun of batch 7052435 due to low yeild on the LCS. The rerun produced acceptable data. Aliquots were reduced due to weight screens.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	03/02/2007	The cause of LCS failures is being investigated.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

3/2/2007 1:06:48 PM

Lot No., Due Date: J7B210142; 03/01/2007
Client, Site: 384868; PGW 615HANFORD HANFORD
QC Batch No., Method Test: 7059234; RBETA-SR Beta by GPC-Sr/Y
SDG, Matrix: W05071A; WATER

	Yes	No	N/A
1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?			✓
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?		✓	
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	✓		
3.5 Are the sample yields and MDAs within contract limits?		✓	
4.0 Raw Data			
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		
5.0 Other			
5.1 Are all nonconformances included and noted?	✓		
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:
NCM 10-09502

First Level Review Kim Autenson **Date** 3/2/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 705234
W050714

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?		/	
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	/		
3. Are the correct isotopes reported?	/		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	/		
2. Does the blank result meet the Contract criteria?	/		
3. Is the blank result < the Contract Detection Limit?	/		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			/
5. Is the LCS recovery with contract acceptance criteria?		/	
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	/		
8. Do the MS/MSD results and yields meet acceptance criteria?			/
9. Do the duplicate sample results and yields meet acceptance criteria?	/		
C. Other 1. Are all Nonconformances included and noted?	/		
2. Are all required forms filled out?	/		
3. Was the correct methodology used?	/		
4. Was transcription checked?	/		
5. Were all calculations checked at a minimum frequency?	/		
6. Were units checked?	/		

Comments on any "No" response: See NCM

Second Level Review: Sheryl A Adam Date: 3-2-07

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #: **10-09502**
NCM Initiated By: Lisa Antonson
Date Opened: 03/02/2007
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: Beta by GPC-Sr/Y
Lot #'s (Sample #'s): J7B210142 (1), J7B280000 (234),
QC Batches: 7059234

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	03/02/2007	This Beta batch is a rerun of batch 7052436 due to low yeild on the LCS. Rerun LCS yeild is 93%. Samples do not meet the CRDL. Sample aliquot was reduced due to weight screens. Results exceed the MDA achieved. Data accpeted.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	03/02/2007	NA

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

2/26/2007 12:18:19 PM

Lot No., Due Date: J7B210142; 03/01/2007

Client, Site: 384868; PGW 615HANFORD HANFORD

QC Batch No., Method Test: 7052433; RTC99 Tc-99 by LSC

SDG, Matrix: W05071A; WATER

	Yes	No	N/A
8.0 Correction Calculation Protocol Used. OK	✓		
8.01 The Appropriate Methods Were Used To Analyze the Samples OK	✓		
8.02 Final Results Are in the Appropriate Activity Units OK	✓		
8.03 Batch Contains the Required QC Appropriate for the Method OK	✓		
8.04 The Correct Tracer and QC Vials Where Used in the Samples Incorrect Tracer/Vial => JPRA81AE TCSG<>TCSE Q:V9 OK (mn 2/26/07)		✓	
8.05 Sample was Appropriately Traced Before or After Fractionating the Sample OK	✓		
8.06 At Least the Minimum Sample Volume Was Used OK	✓		
8.07 The Correct Count Geometry was Used. OK	✓		
8.08 The Sample was Counted for the Minimum Count Time or CRDL was Achieved. OK	✓		
8.09 Method Blank is within Control Limits. OK	✓		
8.1 Comments:			
8.11 Matrix Blank is within Control Limits. No Matrix Blanks (MBlks) found in Batch!			✓
8.12 Method Blank(s) < QAS Limit Value (No B Flag Necessary). OK	✓		
8.13 QAS Specified Duplicate Equation Value within Control Limits. OK (RPD)	✓		
8.14 LCS within Control Limits. OK	✓		
8.15 MLCS within Control Limits. No Matrix Spikes (MLCS) found in Batch!			✓
8.16 MS within Control Limits. OK	✓		
8.17 Tracer within Control Limits. No Tracers found in Batch!			✓
8.18 Samples are above Minimum Tracer Yield (No Failed Samples) No Tracers found in Batch!			✓
8.19 Sample Specific MDC <= CRDL. OK	✓		
8.2 Comments:			
8.21 Result < Lc, Activity Not Detected, U Flag. No Limit Specified!			✓
8.22 Result < Mdc, Activity Not Detected, U Flag. No Positive Results OK Calc IDL Not Calculated	✓		
8.23 Result <= Action Level, when Defined. OK; No Action Level Found => TC-99 OK; No Callin Level Found => TC-99	✓		
8.24 Result + 3s >=0, Not Too Negative. OK	✓		
8.25 Counting Spectrum are within FWHM Limits. No FWHM found in Batch Data!			✓

8.26 Instruments have Current Calibrations.	Yes	No	N/A
8.27 Correct Count Library Used. No Count Library found in Batch Data!	Yes	No	N/A ✓
8.28 Instrument Background within Limits at Time of Counting. (Not Applicable to this version. To be developed in later versions).	Yes	No	N/A
8.29 Instrument Check Source within Limits at the Time of Counting. (Not Applicable to this version. To be developed in later versions).	Yes	No	N/A
8.3 Comments:			
8.31 Results Blank Subtracted as Appropriate. OK	Yes ✓	No	N/A

First Level Review Lisa Antonson **Date** 2/26/07

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 7052433
W0571A

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Sheryl A Adam Date: 2-27-07

J7B310142

W05071A

PNNL J6L020170 W05071 due 01-15-07

due 03-02-07 RW 2/21/07

15 day TAT

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W07-011-348**

Page 1 of 1

Collector Fluor Hanford D. R. BREWINGTON	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. W07-011	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title RCRA, NOVEMBER 2006	HNF-N-506 3	**Ice Chest No.** SAWS 109 **Temp.**
Shipped To (Lab) Severn Trent Incorporated, Richland	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol RCRA	Priority: 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
All Labs except WSCF: Batch all PNNL samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all PNNL GW samples submitted into one SDG, daily closure.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1L5X3		W	11-30-06	1255	1x20-mL P	Activity Scan	None
B1L5X3		W	↓	↓	1x500-mL P	TC99_ETVDSK_LSC: Tc-99 (1)	HCl to pH <2
B1L5X3		W	↓	↓	1x4000-mL G/P	GAMMALL_GS: List-1 (9)	HNO3 to pH <2
B1L5X3		W	↓	↓	1x1000-mL P	906.0_H3_LSC: Tritium (1)	None
B1L5X3		W	↓	↓	1x1000-mL P	9310_ALPHABETA_GPC: Alpha + Beta (2)	HNO3 to pH <2
B1L5X3		W	↓	↓	2x4000-mL G/P	I129LL_SEP_LEPS_GS_LL: I-129 (1)	None
						~~JKPER~~	
						JPQ90	

Relinquished By	Date/Time	Received By	Date/Time
Fluor Hanford D. R. BREWINGTON Print Sign D.R. Brewington	NOV 30 2006 1515	S Smith Print Sign S-Smith	NOV 30 2006 1515
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liquid	T = Tissue	WI = Wipe	L = Liquid
V = Vegetation	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

STL RICHLAND

112

STL

Sample Check-in List

Date/Time Received: 11-30-06 1515

Client: PGW SDG #: W05071 NA [ ] SAF #: W07-011 NA [ ]

Work Order Number: VL2020170 Chain of Custody # W07-011-462, 330, 348, 586

Shipping Container ID: SAWS 336 Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [✓] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [✓] No [ ]
3. Chain of Custody record present? Yes [✓] No [ ]
4. Cooler temperature: _____ NA [ ] 5. Vermiculite/packing materials is NA [✓] Wet [ ] Dry [ ]
6. Number of samples in shipping container: 4
7. Sample holding times exceeded? NA [✓] Yes [ ] No [ ]
8. Samples have:
   _____tape
   _____custody seals
   _____hazard labels
   ✓ appropriate samples labels
9. Samples are:
   ✓ in good condition
   _____broken
   _____leaking
   _____have air bubbles
   (Only for samples requiring head space)
10. Sample pH taken? NA [ ] pH<2 [✓] pH>2 [✓] pH>9 [ ]
11. Sample Location, Sample Collector Listed? * Yes [✓] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
13. Description of anomalies (include sample numbers): N/A

Sample Custodian: L Smith Date: 11-30-06 1515

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/03, Rev. 5

2/28/2007 10:15:28 AM

Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory , Pacific Northwest National Lab

AZ Gross Alpha PrpRC5014
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 03/01/2007 W0507IA

Sep1 DT/Tm Tech:

Batch: 7059236 **WATER** **pCi/L**

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: BockJ APA

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JPRA8-1-AK-X J7B210142-1-DUP 11/30/2006 12:55	124.60g,in AmtRec: 500MLP.LP			1.5	58.9	100	10F Scr:	1350 Alpha:	3/1/07 R Beta:	
2 JPRA8-2-AA J7B210142-1-SAMP 11/30/2006 12:55	123.00g,in AmtRec: 500MLP.LP				54.4		10A Scr:	1544 Alpha:	3/1/07 R Beta:	
3 JP724-1-AA-B J7B280000-236-BLK 11/30/2006 12:55	199.10g,in AmtRec:				0.3		10B Scr:	Alpha:	Beta:	
4 JP724-1-AC-C J7B280000-236-LCS 11/30/2006 12:55	200.30g,in AmtRec:	ASD4134 02/14/07,pd 02/09/06,r #Containers: 1			0.5		10C Scr:	Alpha:	Beta:	

Comments: JPRA8-DUP "Comments. Aliquots reduced due to weight screen activity. JB 02/22/07"

pH < 2.0 JB 2-28-07

Out of Sample used for alpha/Beta, used Sample labeled for gamma. JB 2-28-07

SAMP JPRA8-1-AK-X was refluxed twice and the weight still did not fall below 5T. 3/1/07 APA

SAMP JP724-1-AA-B (BLK) had slight crack in the rim of planchet. 3/1/07 APA

All Clients for Batch:
384868, Pacific Northwest National Laboratory Pacific Northwest National Lab, SA , 57671

JPRA81AK-DUP Constituent List:

ALPHA	RDL:3	pCi/L	LCL:	UCL:	RPD:

JP7241AA-BLK:

ALPHA	RDL:3	pCi/L	LCL:	UCL:	RPD:

JP7241AC-LCS:

Am-241	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

Sample Preparation/Analysis

AZ Gross Alpha PrpRC5014
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

Balance Id:1120482733

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,BockJ

AnalyDueDate: 03/01/2007

Batch: 7059236 **pCi/L**
SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

```
JPRA81AK-DUP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
JP7241AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
JP7241AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

Approved By _____ Date: _____

2/28/2007 10:19:56 AM

Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory , Pacific Northwest National Lab

BC Gross Beta PrpRC5014
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 03/01/2007 W050711A

Sep1 DT/Tm Tech:

Batch: 7059234 **WATER** **pCi/L**

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: BockJ / APA

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JPRA8-1-AJ-X J7B210142-1-DUP 11/30/2006 12:55	126.00g,in AmtRec: 500MLP.LP	#Containers: 2		1.5	97.5	100	27a Scr:	1405 Alpha:	3/1/07 JR Beta:	
2 JPRA8-2-AC J7B210142-1-SAMP 11/30/2006 12:55	124.70g,in AmtRec: 500MLP.LP	#Containers: 2			94.8		27b Scr:	Alpha:	Beta:	
3 JP723-1-AA-B J7B280000-234-BLK 11/30/2006 12:55	203.90g,in AmtRec:	#Containers: 1			0.1		27c Scr:	Alpha:	Beta:	
4 JP723-1-AC-C J7B280000-234-LCS 11/30/2006 12:55	199.90g,in AmtRec:	BESB3020 02/26/07,pd 08/08/06,r #Containers: 1			0.2		27d Scr:	Alpha:	Beta:	

Comments: JPRA8-DUP "Comments. Aliquos reduced due to weight screen activity. JB 02/22/07"

PA < 2.0 JB 2-28-07
Out of Sample for alpha/beta, used Sample Labeled for gamma. JB 2-28-07

All Clients for Batch:
384868, Pacific Northwest National Laboratory Pacific Northwest National Lab, SA , 57671

JPRA81AJ-DUP Constituent List:

BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:

JP7231AA-BLK:

BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:

JP7231AC-LCS:

Sr-90	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

Sample Preparation/Analysis

BC Gross Beta PrpRC5014
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Balance Id:1120482733

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,BockJ

AnalyDueDate: 03/01/2007

Batch: 7059234 **pCi/L**
SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

```
JPRA81AJ-DUP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
JP7231AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
JP7231AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

Approved By _____ Date: _____

2/22/2007 7:38:09 AM

Sample Preparation/Analysis

Balance Id:1120482733

384868, Pacific Northwest National Laboratory , Pacific Northwest National Lab

FP Tc-99 Prp/SepRC5065
S5 Technetium-99 by Liquid Scint
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 03/01/2007 W050718

Sep1 DT/Tm Tech:

Batch: 7052433 WATER pCi/L

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BockJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JPRA8-1-AD J7B210142-1-SAMP 11/30/2006 12:55			125.10g,in AmtRec: 500MLP.LP	125.10g #Containers: 2		60 Scr:	Alpha:		Beta:	
2 JPRA8-1-AE-S J7B210142-1-MS 11/30/2006 12:55			123.20g,in AmtRec: 500MLP.LP	123.20g #Containers: 2	tcsg1775 01/24/07,pd 01/10/06,r	Scr:	Alpha:		Beta:	
3 JPRA8-1-AF-X J7B210142-1-DUP 11/30/2006 12:55			127.30g,in AmtRec: 500MLP.LP	127.30g #Containers: 2		Scr:	Alpha:		Beta:	
4 JPTLC-1-AA-B J7B210000-433-BLK 11/30/2006 12:55			126.40g,in AmtRec:	126.40g #Containers: 1		Scr:	Alpha:		Beta:	
5 JPTLC-1-AC-C J7B210000-433-LCS 11/30/2006 12:55			126.90g,in AmtRec:	126.90g #Containers: 1	tcse2078 02/21/07,pd 01/10/06,r	Scr:	Alpha:		Beta:	
6 JPTLC-1-AD-BN J7B210000-433-IBLK 11/30/2006 12:55			AmtRec:	#Containers: 1		Scr:	Alpha:		Beta:	

Sample Preparation/Analysis

FP Tc-99 Prp/SepRC5065
S5 Technetium-99 by Liquid Scint
5I CLIENT: HANFORD

AnalyDueDate: 03/01/2007

Batch: 7052433 **pCi/L**
SEQ Batch, Test: None

Balance Id:
Pipet #: _____
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: PH <2.0 JB 2-22-07

All Clients for Batch:
384868, Pacific Northwest National Laboratory Pacific Northwest National Lab, SA , 57671

JPRA81AD-SAMP Constituent List:
Tc-99 RDL:15 pCi/L LCL:70 UCL:130 RPD:20
JPRA81AE-MS Constituent List:

JPTLC1AA-BLK:
Tc-99 RDL:15 pCi/L LCL: UCL: RPD:
JPTLC1AC-LCS:
Tc-99 RDL:15 pCi/L LCL:70 UCL:130 RPD:20
JPTLC1AD-IBLK:
Tc-99 RDL:15 pCi/L LCL: UCL: RPD:

JPRA81AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPRA81AE-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPTLC1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPTLC1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
JPTLC1AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

ICOC Fraction Transfer/Status Report

ByDate: 3/2/2006, 3/7/2007, Batch: '7059236', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
7059236							
AC			CalcC	BockJ	2/28/2007 10:12:14		
SC				antonsonl	IsBatched	2/28/2007 8:53:22 AM	ICOC_RADCALC v4.8.26
SC				BockJ	InPrep	2/28/2007 10:12:14 AM	RICH-RC-5016 Revision 6
SC				BockJ	Prep1C	2/28/2007 10:15:33 AM	RICH-RC-5014 REVISION 6
SC				AshworthA	Prep2C	3/1/2007 11:40:45 AM	RICH-RC-5014 REVISION 6
SC				StringerR	InCnt1	3/1/2007 11:53:16 AM	RICH-RD-0003 REVISION 4
SC				StringerR	CalcC	3/1/2007 4:10:11 PM	RICH-RD-0003 REVISION 4
AC				BockJ	2/28/2007 10:15:33		
AC				AshworthA	3/1/2007 11:40:45		
AC				StringerR	3/1/2007 11:53:16		
AC				StringerR	3/1/2007 4:10:11 PM		

3/2/2007 1:02:28 PM

ICOC Fraction Transfer/Status Report

ByDate: 3/2/2006, 3/7/2007, Batch: '7059234', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7059234						
AC		**CalcC**	**BockJ**	2/28/2007 10:15:52		
SC			antonsonl	IsBatched	2/28/2007 8:53:22 AM	ICOC_RADCALC v4.8.26
SC			BockJ	InPrep	2/28/2007 10:15:52 AM	RICH-RC-5016 Revision 6
SC			BockJ	Prep1C	2/28/2007 10:20:00 AM	RICH-RC-5014 REVISION 6
SC			AshworthA	Prep2C	3/1/2007 11:40:51 AM	RICH-RC-5014 REVISION 6
SC			StringerR	InCnt1	3/1/2007 11:53:22 AM	RICH-RD-0003 REVISION 4
SC			StringerR	CalcC	3/1/2007 2:26:53 PM	RICH-RD-0003 REVISION 4
AC			**BockJ**	2/28/2007 10:20:00		
AC			**AshworthA**	3/1/2007 11:40:51		
AC			**StringerR**	3/1/2007 11:53:22		
AC			**StringerR**	3/1/2007 2:26:53 PM		

2/26/2007 12:17:44 PM

ICOC Fraction Transfer/Status Report

ByDate: 2/26/2006, 3/3/2007, Batch: '7052433', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
7052433							
AC			**CalcC**	**BockJ**	2/22/2007 7:30:14		
SC				antonsonl	IsBatched	2/21/2007 2:38:30 PM	ICOC_RADCALC v4.8.26
SC				BockJ	InPrep	2/22/2007 7:30:14 AM	rich-rc-5017 rEVISION 5
SC				BockJ	Prep1C	2/22/2007 7:38:18 AM	RICH-RC-5016 REVISION 6
SC				HarveyK	InSep1	2/22/2007 10:22:01 AM	RICH-RC-5065 REV5
SC				HarveyK	Sep1C	2/22/2007 5:52:48 PM	RICH-RC-5065 REV5
SC				DAWKINSO	InCnt1	2/22/2007 6:17:18 PM	RICH-RD-0001 REVISION 3
SC				BlackCL	CalcC	2/23/2007 8:08:44 AM	RICH-RD-0001 REVISION 3
AC				**BockJ**	2/22/2007 7:38:18		
AC				**HarveyK**	2/22/2007 10:22:01		
AC				**HarveyK**	2/22/2007 5:52:48 PM		
AC				DAWKINSO	2/22/2007 6:17:18 PM		
AC				**BlackCL**	2/23/2007 8:08:44		

AC: Accepting Entry; SC: Status Change

Data Verification Log (Qualifiers)

Batch Verification Log Order by Qualifier Type, Work Order, Parameter

SEVERN TRENT STL

Work Order No.	Parameter Code	Verification Item		LCL	UCL	Associated Value	Text Limit	Limit Units	Qualifier	Discription	Validation Text
vInfo											
8.06 JPRA82AA		MinSaVolumeChe	AnalyVolume/QasMinAnalyVo >= 0.95	200.0	0.95	0.615			**VB**	Less than the Minimum Specified Sample Volume was Used.	Analysis Volume => JPRA82AA 123.00<200.00 Q:VB
vND											
8.22 JPRA82AA	ALPHA	ResultLTLcMdcAc	ResultValue < ResultUCL		2.4	2.4		pCi/L	**U5**	Result <= MDC, where MDC = 4.65 * sqrt(BlkBkg) + ~3.	No Positive Results, OK